

CLAIMS

1. lock assembly for a mobile part (10) of a vehicle body such as a hatch or door, especially for a rear hatch,

-- where the mobile part (10) is secured in its closed position with respect to a stationary part of the vehicle body by means of a lock;

-- with a lock cylinder (40) into which a key (41) can be inserted, which, when turned in an emergency situation, rotates the lock cylinder (40) and moves the lock between an unlocking position and a locking position;

-- with a handle (21) on the mobile part (10), which is able to pivot in a plane perpendicular to the body of the vehicle,

-- and which can be moved from a closed position (20.1), flush with the vehicle body, where the lock cylinder (40) is protected,

-- into an outwardly-pivoted position (20.2), in which the handle (21) can be gripped manually to open the mobile part (10); and

-- where, in the outwardly-pivoted position (20.2), the lock cylinder (40) is accessible to the key (41) and can be

actuated by rotation in an emergency situation in order to shift the lock between the locking position and the unlocking position,

characterized in that the lock cylinder (40) is mounted on the rear surface (26) of the handle (21) and forms with this handle (21) a combination (20), which can move as a unit between the closed position (20.1) and the outwardly-pivoted position (20.2);

-- where the lock cylinder (40) points toward the interior (32) of the mobile part (10) when the combination (20) is in the closed position (20.1); in that

-- an element (45) of a rotating coupler (rotating coupler element 45), which can rotate along with the lock cylinder (40) when the lock cylinder is turned by the key, is mounted on the combination; in that

-- a stationary opposing element (35) of this rotating coupler (opposing rotating coupler element 35), which acts on the lock, is mounted at a defined point on the mobile part (10);

-- which opposing element is disconnected from the rotating coupler element (45) when the combination (20) is in the coupling position (20.1), but is in rotational engagement with

this element (45) when the combination (20) is in the outwardly-pivoted position (20.2); in that

-- the stationary opposing rotating coupler element (35) is mounted in the same perpendicular plane in which the rotating coupler element (45) moves during the coupling movement (25) of the combination (20); and in that

-- during the last phase of the outward-pivoting movement (25) of the combination (20), the coupling point of the rotating coupler element (45) engages with the opposing coupling point of the opposing rotating coupler element (35).

2. Lock assembly according to Claim 1, characterized in that the lock cylinder (40) is integrated into the material of the handle (21, 22) of the pivoting combination (20).

3. Lock assembly according to Claim 1 or Claim 2, characterized in that the axis (44) of the lock cylinder (40) is mounted in the same perpendicular plane as that in which the pivoting movement (25) of the combination (20) takes place.

4. Lock assembly according to one of Claims 1-3, characterized in that the cylinder housing (42) which accepts the lock cylinder (40) is designed as an integral part of the handle (21, 22) of the combination (20).

5. Lock assembly according to one of Claims 1-4, characterized in that the handle (21) consists of a flat and/or an arched plate (22, 23); and in that

-- the axis (44) of the lock cylinder (40) is essentially parallel to the plane of the plate.

6. Lock assembly according to one of Claims 1-5, characterized in that the handle (21) of the combination (20) consists of a two-layer plate (22, 23),

-- namely, a rear base plate (22), which is provided with the bearing means (12, 13, 57) for the pivoting movement (25), and a decorative plate (23) on the visible side.

7. Lock assembly according to one of Claims 1-6, characterized in that the handle (21) of the combination (20) has a company emblem (24) on the visible side.

8. Lock assembly according to one of Claims 1-7, characterized in that a protective sleeve (27, 29) is mounted on the rear surface (26) of the handle (21),

-- which sleeve surrounds the outside of the coupling element (45) seated on the combination (20) and travels along with it; and in that

-- the protective sleeve (27, 29) accommodates at least the coupling point (37) of the stationary opposing joint element (35) during every phase of the pivoting movement (25) and thus protects the lock against attempts to manipulate it.

9. Lock assembly according to Claim 8, characterized in that the stationary opposing joint element (35) serves simultaneously as a guide means for the protective sleeve (27) during the pivoting movement (25) of the combination (20).

10. Lock assembly according to Claim 8 or Claim 9, characterized in that the protective sleeve (27, 29) is designed as an integral part of the handle (21, 22) of the combination (20).

11. Lock assembly according to one of Claims 8-10 with a housing (30), wherein the handle (21) can undergo a pivoting movement (25) around an axis (pivot axis 15) extending transversely across the housing (30);

-- where the handle (21), when in the closed position (20.1), closes off the opening (31) in the housing and forms together with the housing (30) a structural unit (11), which can be attached as a whole to the mobile part (10) of the vehicle body,

characterized in that

-- the stationary opposing rotating coupler element (35) is rotatably supported (36) at a defined point in the housing wall (33), its coupling point (37) pointing into the interior (32) of the housing and toward the combination (20); and in that

-- a driver (16) is connected nonrotatably on the outside surface of the housing (30) to the opposing rotating coupler element (35), which driver is connected to the lock by way of an additional link chain (50).

12. Lock assembly according to one of Claims 8-11 with a stop (28) on the handle (21) and with a counterstop (48) on the housing (30);

-- where, in the outwardly-pivoted position (20.2), the movable stop (28) makes contact with the stationary counterstop (48) and thus limits the outward pivot angle (19),

characterized in that

-- a section of the protective sleeve (27) facing in the direction of the pivoting movement (25) forms the stop (28).

13. Lock assembly according to Claim 14, characterized in that the housing wall (33) has a step (48, 49), facing the interior (32) of the housing,

-- the tread (48) of which step, i.e., the surface facing the stationary opposing joint element (35), serves as a counterstop, cooperates with the protective sleeve (27), and limits the outwardly-pivoted position (20.2) of the combination (20).

14. Lock assembly according to Claim 13, characterized in that the riser (49) of the step in the housing, i.e., the surface which faces the housing opening (31), serves as a stop for the closed position (20.1) of the combination (20).

15. Lock assembly according to Claim 14, characterized in that the riser (49) is provided with an elastic buffer (14).

16. Lock assembly according to one of Claims 8-15, characterized in that the pivot axis (15) of the combination (20) is produced by two separate axle pins (12, 13),

-- which are introduced from opposite outside surfaces (61, 62), pass first through two bores (53) in the housing (30), and then extend into two blind holes (57) in the combination (20).

17. Lock assembly according to Claim 16, characterized in that, after the two axle pins (12, 13) have been installed, there is a certain gap (58) between their facing ends; and in that

-- the lock cylinder (40) is accommodated in this gap (58).

18. Lock assembly according to Claim 16 or Claim 17, characterized in that the cylinder axis (44) of the lock cylinder (40) is perpendicular to the pivot axis (15) but is set back into the interior of the housing (32) from the pivot axis (15).

19. Lock assembly according to one of Claims 16-19, characterized in that the axle pins consist of two cap screws (12, 13), which pass through two bearing bushes (56, 55) mounted in the two housing bores (53) and are anchored in two threaded holes (27) in the combination (20).

20. Lock assembly according to one of Claims 8-19, characterized in that a working arm (59) is mounted on the outside surface of the housing (30), which arm is connected nonrotatably to the combination (20) and pivots along with it during the pivoting movement (25); and in that

-- during its pivoting movement (25), the working arm (59) acts on other functional parts such as microswitches (60) and/or damping elements.

21. Lock assembly according to Claim 20, characterized in that the nonrotatable connection between the working arm (59) and the combination (20) is produced by means of one of the screws (12) which determine the pivot axis (25).

22. Lock assembly according to Claim 20 or Claim 21, characterized in that the working arm (59) is seated nonrotatably on one of the bearing bushes (56) to form an arm-bush unit (59, 56); and in that

-- the arm-bush unit (59, 56) is anchored in the combination (20) by means of the screw (12) which passes through the bearing bush (56).

23. Lock assembly according to one of Claims 1-23, characterized in that a freewheel coupling (46) is provided between the lock cylinder (40) and the rotating coupler element (45), which coupling moves concomitantly (25) with the combination (20),

-- which freewheel coupling (46) disconnects the nonrotatable connection between the lock cylinder (40) and the rotating coupler element (45) when the lock cylinder (40) is turned by force.